

REMARKS

Claims 1-21 are pending in the application. In the Office Action, claims 1-16 and 20 have been rejected. Claims 17-19 have been objected to. Applicant acknowledges that claims 17-19 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 17 has been amended to include all of the limitations of claim 13, from which it originally depended (claim 17 is now an independent claim). Claims 18 and 19 depend from amended claim 17.

Applicant appreciates that the Examiner has indicated that the drawings filed with the application have been accepted.

Applicant wishes to note that priority has been claimed under 35 U.S.C. § 119(e) to a U.S. provisional application filed on February 8, 2001. Although the March 11, 2002, Filing Receipt indicates that Applicant has made that claim in the application, the Examiner has not checked Box 14 on the Office Action Summary to indicate that the Examiner has acknowledged Applicant's priority claim. Applicant respectfully requests that the Examiner acknowledge the priority claim in the next Office Action.

The following remarks are directed to new claim 21 and the rejections of claims 1-16 and 20. Before addressing those claims, however, a summary of the invention is provided.

The Present Invention

In the application, the claims are directed to a composite building material and panels made therefrom. Building panels made from the claimed composite material are integral components of a structure. The roof, walls, trusses, floor, and door and window openings of the structure are all made of or from one or more panels. The invention involves an independent building system that does not require other conventional building materials to assemble the structure.

In particular, the building panels include raised ribs extending perpendicular to and across the upper or the lower face of the panels, as recited in amended claim 1. Those ribs are proportioned and positioned to support axial and dead live loads as well as to resist bending stresses in the panel.

Rejection Under 35 U.S.C. § 102(b)

In the Office Action, the Examiner has rejected claims 1 and 5 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,150,808 (to *Sawyer*). *Sawyer* discloses a concrete form used to make concrete into structural walls by spacing apart two forms and filling the void with concrete. The forms are removed after the concrete has set and then re-used. The concrete structural wall becomes an integral component of a structure, not the forms. The forms include two horizontal parallel raised ribs 42 on one side of the form, and a honeycomb lattice formed by partition walls 32 on the opposite side of the form, as shown in the Examiner's marked-up copy of FIGS. 5 and 6.

Applicant respectfully submits that *Sawyer* does not disclose a panel having raised ribs on only one side of the panel (the other side being without any raised ribs, *i.e.*, smooth), as recited in amended claim 1. Indeed, *Sawyer* discloses ribs 42 and partition walls 32 on opposite sides of the form, both of element being essential to the invention as disclosed. Accordingly, *Sawyer* does not anticipate amended claim 1. Since claim 5 depends from claim 1, *Sawyer* does not anticipate that claim either. Withdrawal of the § 102(b) rejection is, therefore, respectfully requested.

Rejection of Claims 2 and 3 Under 35 U.S.C. § 103(a)

In the Office Action, the Examiner has rejected claims 2 and 3 under 35 U.S.C. § 103(a) as being unpatentable over *Sawyer* in view of U.S. Patent Appl. No. 2001/0032430A1 (to *Peshkam et al.*). The Examiner asserts that *Sawyer* teaches each feature of the claimed invention except a polymer composite material, but that *Peshkam et al.* teaches a glass fiber reinforced polymer. Claims 2 and 3 recite that the invention is made of a "polymer composite material."

First, as noted above, *Sawyer* does not disclose each element of amended claim 1. In particular, as noted above, *Sawyer* does not teach using anything but raised ribs and partition walls on opposite sides of the form. Moreover, it would not have been obvious at the time of the invention to eliminate either the ribs from one side of the form, or the partition walls from the other side of the form. In the case of the two horizontal parallel ribs 42 shown in *Sawyer*, those ribs are disclosed as being used to strengthen resistance to bending in the concrete form. Moreover, the two horizontal parallel ribs 42 are incapable of supporting roof dead and

live loads. In the present invention, some of the claimed plurality of raised ribs serve to transmit a load on the topmost perimeter flange to the bottom perimeter flange much like the action of a series of equally spaced studs. Some of the other claimed plurality of raised ribs essentially provide blocking to render stiffness to the load-bearing raised ribs. Neither of those features of the present claimed invention are disclosed or taught in *Sawyer*, with respect to the ribs 42. Thus, ribs 42 are essential to the invention and one of ordinary skill in the art would not have been motivated to eliminate the ribs 42 from the one side of the form.

In the case of partition walls 32 shown in *Sawyer*, those walls are disclosed as providing support for thermal insulation material (i.e., for insulating the poured concrete). Therefore, the partition walls 32 are also essential to the invention and one of ordinary skill in the art would not have been motivated to eliminate the partition walls 32 from the other side of the form. That is, as noted above, *Sawyer* discloses that raised ribs and partition walls must be present on opposite sides of the form.

Applicant respectfully submits that neither *Sawyer* by itself, nor in combination with *Peshkam et al.*, discloses or teaches the panel recited in amended claim 1. Moreover, the inventions recited in claims 2 and 3 are made of polymer composite material; *Sawyer* does not disclose such a feature.

Accordingly, neither *Sawyer* by itself, nor in combination with *Peshkam et al.*, renders claims 2 and 3 unpatentable under § 103(a). Withdrawal of the § 103(a) rejection of claims 2 and 3 is, therefore, respectfully requested.

Rejection of Claims 4 and 20 Under 35 U.S.C. § 103(a)

In the Office Action, the Examiner has also rejected claims 4 and 20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,768,829 (to *Thompson*) in view of *Sawyer*. Claim 4 is directed to a plurality of panels having at least one opening, wherein the opening comprises a frame for a window, door, or ventilation. Claim 20 is directed to a method of forming a structure using panels.

Thompson teaches a plurality of panels for constructing a building having an opening comprised of a frame for a window. However, *Thompson* does not teach each feature of the structure of the panels recited in claim 4. *Sawyer*, however, teaches some of the structure of the claimed panels but does not disclose forming an opening for a frame for a window.

Sawyer's forms, rather, do not have the integrity to support vertical loads, so removing a form from several adjacent forms or cutting out a portion of a single form to provide an opening for a window or door will leave the form(s) unsupported above the cut-out portion. Thus, securing together *Sawyer's* forms in the manner of *Thompson's* building poses structural problems.

In contrast, the opening provided for in the present invention comprises a frame for the window that retains flanged side supports and raised ribs that are integral to the panel. Thus, one of ordinary skill in the art would not have been motivated by *Thompson* and *Sawyer* to come up with the invention recited in claim 4.

With regard to amended claim 20, Applicant respectfully submits that neither *Thompson* nor *Sawyer* disclose or teach the combination of steps for constructing a structure as presently recited in that claim.

Accordingly, Applicant respectfully submits that *Thompson* and *Sawyer* do not render claims 4 and 20 unpatentable. Withdrawal of the § 103(a) rejection of claims 4 and 20 is, therefore, respectfully requested.

Rejection of Claims 6-10 Under 35 U.S.C. § 103(a)

In the Office Action, the Examiner has also rejected claims 6-10 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,327,699 (to *Khan et al.*) in view of *Sawyer*. Claims 6-10 are directed to various additional features of the invention and depend from claim 1.

With respect to claim 6, in *Khan et al.*, a 45-degree angle miter cut is made for interior wall modules, which are joined by corner molding points to non-load bearing walls. The load-bearing wall in *Khan et al.* does not specify a miter cut, but rather discloses a corner post onto which wall modules are attached. Therefore, Applicant respectfully submits that there is no teaching in *Khan et al.* to combine *Khan's* miter cut on an interior wall structure with *Sawyer's* concrete forms to come up with the load-bearing capability of the claimed invention. Further, *Sawyer* teaches away from adding a 45-degree angle because adding a miter cut on one or more of the ribs 40a and 40b, shown in FIGS. 2 and 5, would reduce the strength and resistance to bending that those elements provide in the concrete form. Thus,

one of ordinary skill in the art would not have combined *Khan et al.* and *Sawyer* to come up with the invention recited in claim 6.

With regard to claim 7, *Khan et al.* discloses a conduit for use in transmitting a force load above the wall module to the base. This load-bearing feature is in contrast to the claimed invention's conduit that serves, in one embodiment, as a race for electrical wires. There is no teaching or suggestion in *Khan et al.* to form, for example, a conduit for electrical wires. Moreover, *Sawyer* does not teach adding a conduit across the concrete form. Thus, one of ordinary skill in the art would not have combined *Khan et al.* and *Sawyer* to come up with the invention recited in claim 7.

With regard to claims 8-10, *Sawyer* teaches away from using the concrete forms for any purpose other than forming concrete walls. There is no suggestion or teaching in *Sawyer* to use the concrete forms for constructing floors, roofs or roof trusses. Therefore, one of ordinary skill in the art would not have combined *Sawyer* with *Khan et al.* to come up with the invention recited in claims 8-10.

Accordingly, Applicant respectfully submits that *Khan et al.* and/or *Sawyer* do not disclose the invention recited in claims 6-10, which depend from claim 1, and, therefore *Khan et al.* and *Sawyer* do not render claims 6-10 unpatentable. Withdrawal of the § 103(a) rejection of claims 6-10 is, therefore, respectfully requested.

Rejection of Claim 11 Under 35 U.S.C. § 103(a)

In the Office Action, the Examiner has also rejected claim 11 under 35 U.S.C. § 103(a) as being unpatentable over *Sawyer*. Claim 11 is directed to an embodiment of the invention in which the panel is square-shaped.

As noted previously, the ribs 42 and the partition walls 32 are essential to the invention disclosed in *Sawyer* and one of ordinary skill in the art would not have been motivated to eliminate the ribs 42 from the one side of the form or the partition walls 32 from the other side of the form. Thus, *Sawyer* does not teach the invention of claim 1, from which claim 11 depends.

Specifically with regard to claim 11, the concrete forms in *Sawyer* are assembled and utilized in two spaced apart, parallel planes. The size of the joined panels in one plane is only limited by the height of the concrete wall being erected, the ease with which the forms can be

handled and the stock sizes of the materials for the panels. Thus, *Sawyer* does not teach that the forms must be square.

In contrast, in the embodiment of the present invention recited in claim 11, the panels are sized to take into account the multi-plane structure that the walls will enclose. That is, the walls must close; the outside edges of the floors must be flush with the outside edges of the walls; and, the roof edges at the gable ends must be flush with the outside edges of the walls.

Accordingly, Applicant respectfully submits that *Sawyer* does not disclose the invention recited in claim 11, which depend from claim 1, and, therefore, *Sawyer* does not render claim 11 unpatentable. Withdrawal of the § 103(a) rejection of claim 11 is, therefore, respectfully requested.

Rejection of Claims 13 and 16 Under 35 U.S.C. § 103(a)

In the Office Action, the Examiner has also rejected claims 13 and 16 under 35 U.S.C. § 103(a) as being unpatentable over *Sawyer* in view of U.S. Patent No. 5,922,236 (to *Zuhl*).

As noted previously, Applicant respectfully submits that *Sawyer* does not disclose a panel having raised ribs on only one side of the panel, as recited in amended claim 13. Indeed, as noted previously, *Sawyer* discloses ribs 42 on one side of the form and partition walls 32 on the other side of the form, both of which are essential to the invention as disclosed. Accordingly, *Sawyer*, by itself, does not render amended claim 13 unpatentable.

Like *Sawyer*, *Zuhl* discloses a concrete form. *Zuhl* further discloses a plurality of vertical ribs intersecting a plurality of horizontal ribs at a 90-degree angle to stiffen the form, specifically in the area of the form where stabilizing spacers are attached as shown in FIG 2. When completely assembled, the concrete form can be lifted into a trench at the frame edge where the vertical ribs are attached. *Zuhl*, however, does not teach a plurality of vertical ribs that are extended toward the rear, far enough from the upper face to support vertical loads. Thus, one of ordinary skill in the art would not have merely added perpendicular ribs, in the manner of *Zuhl*, to the concrete form disclosed in *Sawyer* to come up with the structural integrity of the claimed invention.

Accordingly, neither *Sawyer*, by itself nor in combination with *Zuhl*, renders amended claim 13 unpatentable. Since claim 16 depends from claim 13, *Sawyer* and/or *Zuhl* do not

render that claim unpatentable either. Withdrawal of the § 103(a) rejection of claims 13 and 16 is, therefore, respectfully requested.

Rejection of Claim 14 Under 35 U.S.C. § 103(a)

In the Office Action, the Examiner has also rejected claim 14 under 35 U.S.C. § 103(a) as being unpatentable over *Sawyer* in view *Zuhl* and U.S. Patent No. 4,168,924 (to *Draper et al.*).

As noted above, Applicant submits that neither *Sawyer* nor *Zuhl*, alone or in combination, teach the embodiment of the present invention recited in amended claim 13, and, therefore, do not render amended claim 13 unpatentable. Since claim 14 depends from claim 13, *Sawyer* and/or *Zuhl* do not render that claim unpatentable either. *Draper et al.* does not teach or suggest modifying *Sawyer* to eliminate either the ribs 42 or the partition walls 32 from one or both sides of the form.

Moreover, *Draper* teaches construction with a polyolefin material. Specifically, *Draper et al.* teaches reinforcement of hydraulic and asphalt concrete by embedding at least one rigid plastic grid of high-density polyolefin having a coefficient of expansion equal to or greater than the specific type of concrete. Preferred material for the reinforcement grid depends on the base concrete the grid is reinforcing. *Draper et al.* does not teach construction of a panel out of a single base material. Applicant submits that one of ordinary skill in the art would not have adapted the polyolefin material in *Draper et al.* to either of *Sawyer's* or *Zuhl's* concrete forms to come up with the claimed invention.

Accordingly, *Sawyer*, by itself or in combination with *Zuhl* and/or *Draper et al.*, does not render claim 14 unpatentable. Withdrawal of the § 103(a) rejection of claim 14 is, therefore, respectfully requested.

Rejection of Claim 15 Under 35 U.S.C. § 103(a)

In the Office Action, the Examiner has also rejected claim 15 under 35 U.S.C. § 103(a) as being unpatentable over *Sawyer* in view *Zuhl* and *Peshkam et al.*

As noted previously, neither *Sawyer*, *Zuhl* and/or *Peshkam et al.*, alone or in any combination, suggest that *Sawyer* could be modified to eliminate either the ribs 42 or the

partition walls 32 from one side of the form or the other. Thus, none of those patents alone or in combination renders the embodiment of claim 15 unpatentable.

Sawyer and *Zuhl* do not teach a polymer composite material. *Peshkam et al.*, however, teaches a fiber reinforced polymer. However, the structural member in *Peshkam et al.* is comprised of an outer shell and at least one arcuate or diagonal reinforcing member which is reinforced with different volumes of longitudinally and laterally oriented fibers as determined by the application to which the structural member is to be used. Applicant submits that one of ordinary skill in the art would not have been motivated by *Peshkam et al.* to modify the form in *Sawyer* to come up with the claimed invention.

Accordingly, *Sawyer*, by itself or in combination with *Zuhl* and/or *Peshkam et al.*, does not render claim 15 unpatentable. Withdrawal of the § 103(a) rejection of claim 15 is, therefore, respectfully requested.

New Claim 21

Claim 21 has been added to the application to better capture what the inventor considers as his invention. Claim 21 is directed to a method of forming panels using compression. That method is disclosed on page 4 of the application. No new matter is being introduced. Applicant respectfully requests allowance of new claim 21.